



*Using Conservation Easements to Save
the Upper San Pedro River*



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by
Lieutenant Colonel Kevin J. Luster
US Army

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AGENDA

- **Background**
 - Fort Huachuca: From Calvary Post to the Home of Army Intelligence and Communications
 - The Upper San Pedro River Basin
 - The 1999 Biological Opinion
 - Achieving Zero-Balance
- **Conservation Easements**
 - Working with Partners
 - Cooperative Agreement
 - Recent Acquisitions
- **Conclusion**



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Background

Fort Huachuca: From Calvary Post to the Home of Army Intelligence and Communications



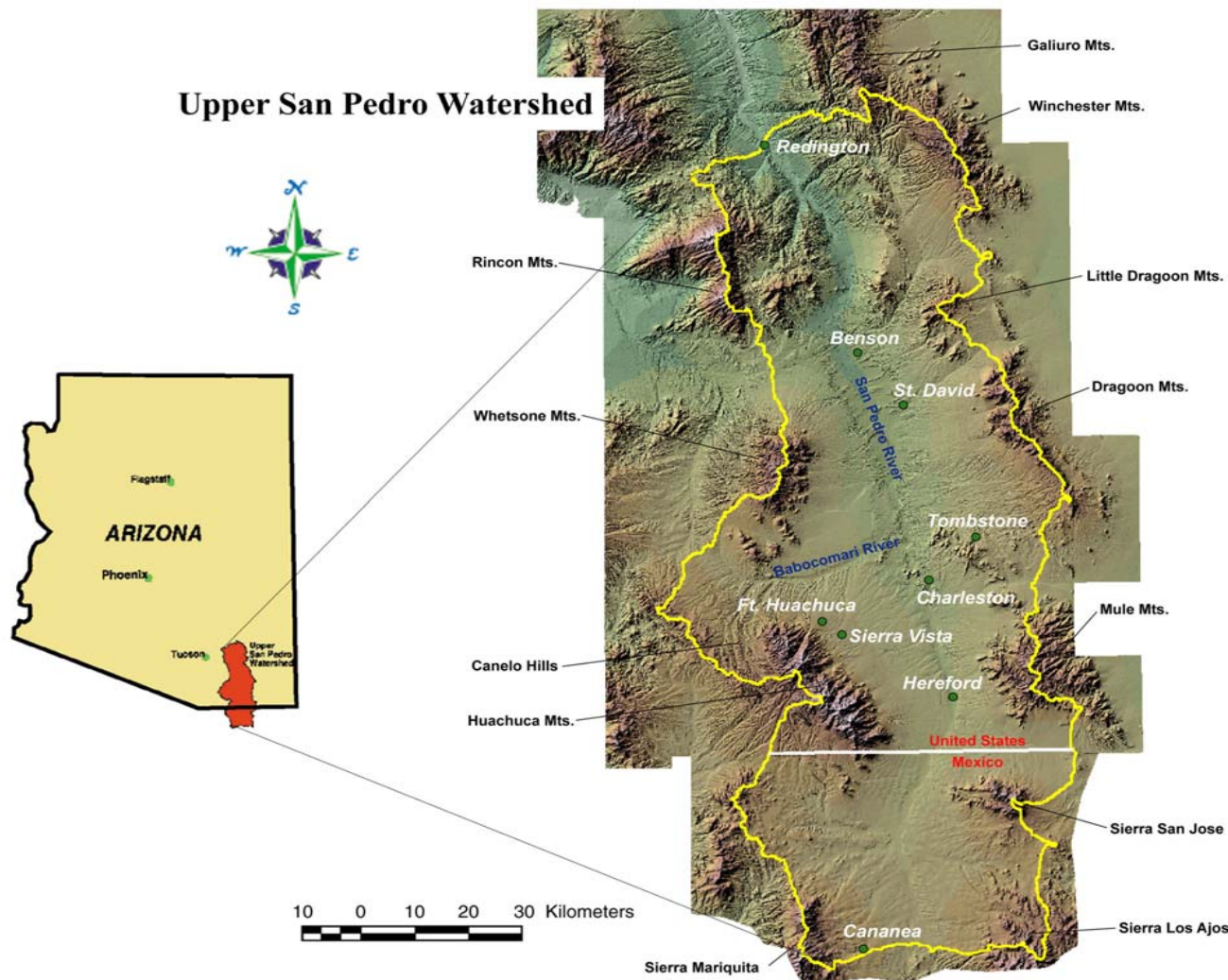
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The Upper San Pedro River Basin



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The Upper San Pedro River Basin



- In 1991, ADWR Estimated: 56,820 ac-ft flowed into the Subwatershed, 39,200 ac-ft flowed out of the River, and residents pumped 28,850 ac-ft of groundwater; Resulting in an Annual Deficit of 11,230 ac-ft.
- With recent reductions in Agricultural Irrigation, the Annual Deficit is 7,000 ac-ft.

ADWR: Arizona Department of Water Resources





The 1999 Biological Opinion

Under Section 7 of the Endangered Species Act, Fort Huachuca has the duty to cooperate with the US Fish & Wildlife Service (USFWS) to conserve endangered and threatened species. In 1999, the USFWS issued a Biological Opinion that requires Fort Huachuca to undertake several water conservation measures.



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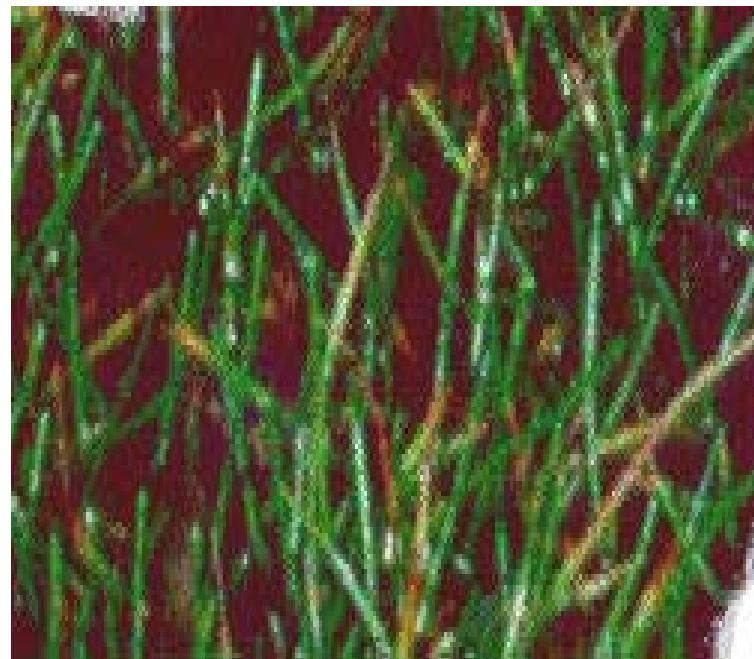


The 1999 Biological Opinion



Southwestern Willow Flycatcher

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Huachuca Water Umbel



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The 1999 Biological Opinion

- **Region pumps 9,400 ac-ft annually**
- **Deficit of Appx 7,000 ac-ft annually**
- **34,530 people live in region due to Fort**
- **Fort responsible for 5,802 ac-ft annually**
 - **On-post pumping: 2,355 ac-ft in 1996**
 - **Off-post pumping: 3,447 ac-ft annually***

*** Fort contends that it is only responsible for 2,766 ac-ft of annual off-post pumping**



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The 1999 Biological Opinion

- **Goals:**
 - **Balance pumping w/recharge on Fort by 2009**
 - **Work with the BLM, the USFWS, and local stakeholders thru the Upper San Pedro Partnership (USPP) to sustain the base flow of the San Pedro River**



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Achieving Zero-Balance

- **Applying Water Conservation Technology**
 - Installed 300 Waterless Urinals by October 2000
 - Replaced All Showerheads 1.5 gpm Showerheads
 - Placing Horizontal-axis Washers in Barracks
- **Employing a Water Conservation Ethos**
 - Xeriscape 1+ acre per year of Existing Landscape
 - Require Xeriscaping in New Construction
 - Strict Restrictions on Irrigation
- **Returning More Water to the Aquifer**
 - Capture More Urban Runoff - 250 to 500 ac-ft
 - New Effluent Recharge Facility - 1000 ac-ft



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Fort Huachuca Population and Water Use (Pumpage)

<i>Year</i>	<i>On-Post Population</i>	<i>Noonday Population</i>	<i>Water Use In Acre Feet</i>
2001	8,991	15,826	1,655
2000	9,728	15,518	1,843
1999	8,584	15,466	1,893
1998	7,603	14,793	2,176
1997	7,760	14,850	2,357
1996	8,656	15,310	2,355
1995	8982	15,842	2428
1994	9388	16,420	2568
1993	8534	16,183	3028
1992	8163	16,386	2846
1991	8410	16,195	2709
1990	9210	17,075	2747
1989	9204	17,133	3207
1988	9142	16,687	3200
1987	9667	16,960	2470
1986	8918	16,563	2896
1985	8887	16,778	2984
1984	9022	16,341	3088
1983	9860	16,360	2874
1982	9433	15,840	2735



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Achieving Balance On Post

- **2001 On-Post Water Use: 1,655 ac-ft**
- **Returning More Water to the Aquifer**
 - **Annual Recharge: App. 500 ac-ft**
 - **Capturing Urban Runoff: 250-500 ac-ft**
 - **Effluent Recharge Facility: 1,000 ac-ft**
- **Fort Will Achieve Balance by 2007**



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Question

Now that Fort Huachuca has reduced and offset nearly all of its on-post water use, how will it address the 3,445 ac-ft of annual off-post water use that the USFWS attributes to the Fort?



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Conservation Easements

Working with Partners

While Fort Huachuca may soon balance its on-post water use, it must cooperate with local partners within and outside the Upper San Pedro Partnership (USPP) to identify and implement methods to reduce the region's annual water-pumping deficit of approximately 7,000 ac-ft.



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Cooperative Agreement

- **In September 2000, Fort Huachuca and The Nature Conservancy entered into a Cooperative Agreement**
- **Administered by US Army Medical Research Acquisition Activity**
- **Funded with \$930,319 (ECA Program)**
- **Authority of Sikes Act, 16 USC §670c-1**





Cooperative Agreement

- **Three Stated Objectives:**
 - **Support the Military Mission at Fort Huachuca by Protecting, Maintaining, and Enhancing Threatened and Endangered Species and their Habitat in the Upper San Pedro River Basin,**
 - **Encumber Private Property Land Uses of Willing Landowners Near the Upper San Pedro River Basin with Conservation Easements, and**
 - **Improve Long-term Management of Threatened and Endangered Species within the Upper San Pedro River Basin.**



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Cooperative Agreement

- TNC identifies willing sellers of real property near upper San Pedro River
- TNC either buys property & retains easement before selling it, or buys easement outright
- Easement is on water use, access, and development rights
- Fort Huachuca pays for easement, BLM manages easement, and USFWS issues letter of water credits to the Fort for the easement*

*USFWS determines value of easement from 1990 ADWR Hydrologic Survey



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Recent Acquisitions

- **Clinton Ranch (940 acres) near SPRNCA (120 acres irrigated) credit = 630.8 ac-ft**
 - **Drijver Tract (105 acres) w/in “the Gap” (75 acres irrigated) credit \approx 500 ac-ft**
 - **Other Tracts \approx 1,900 ac-ft**
- Total Credits \approx 3,000 ac-ft**



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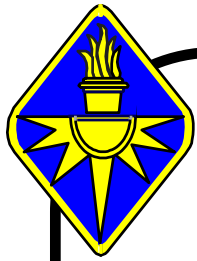


Conclusion

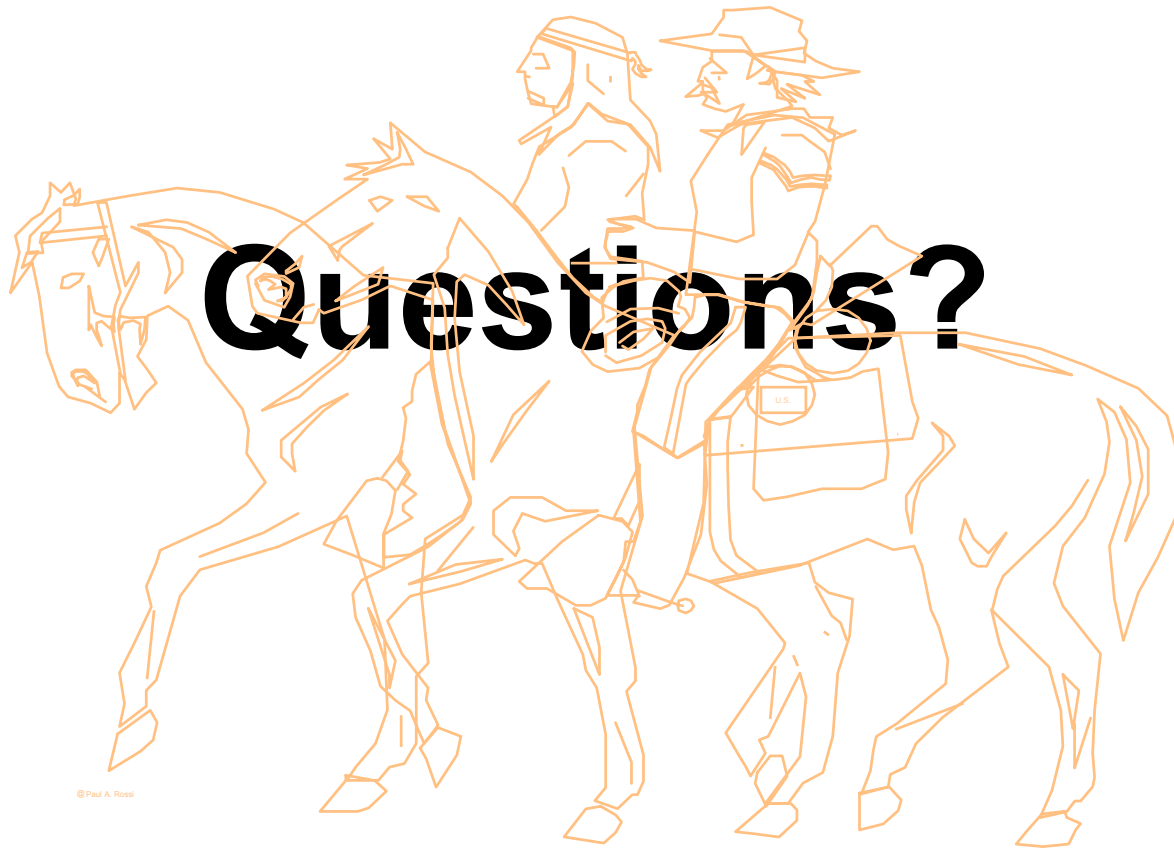
Fort Huachuca will soon reach zero-balance between its on-post water use and the water it returns to the aquifer. Off-post, the Fort is a leader in working with local partners through the USPP and its Cooperative Agreement with The Nature Conservancy to reduce the region's annual water-use deficit.



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